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SCOPE

The primary objective of the International Journal of Enterprise Information Systems (IJEIS) is to provide comprehensive coverage and understanding of various enterprise information systems (EIS) such as enterprise resource planning (ERP) and electronic commerce (EC) and their implications on supply chain management and organizational competitiveness. Design, development, and implementation issues of EIS including ERP and EC will be discussed. These include organizational, people, and technological issues of EIS. The secondary objective of this journal is to expand the knowledge on ERP and EC and in turn help researchers and practitioners to develop suitable strategies, tactics, and operational policies for EIS and for improving communication in organizations. This journal publishes original contributions in the areas of design and implementation of EIS. IJEIS intends to be a forum for exchanging new ideas and developments in the field of EIS. This journal also acts as a medium of communication among EIS researchers and practitioners.

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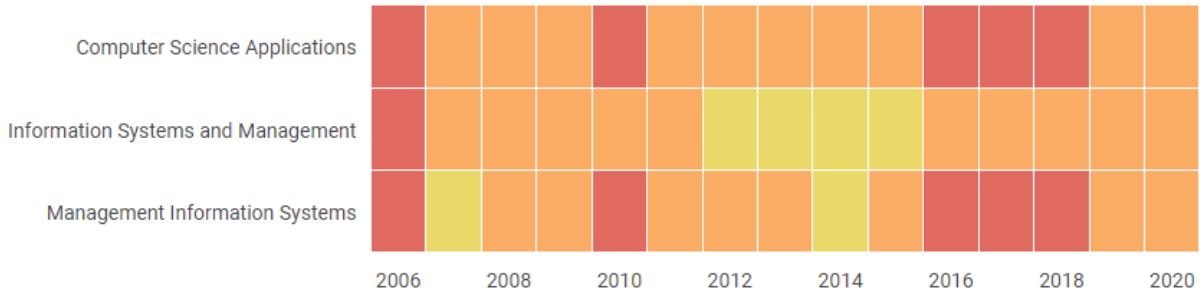

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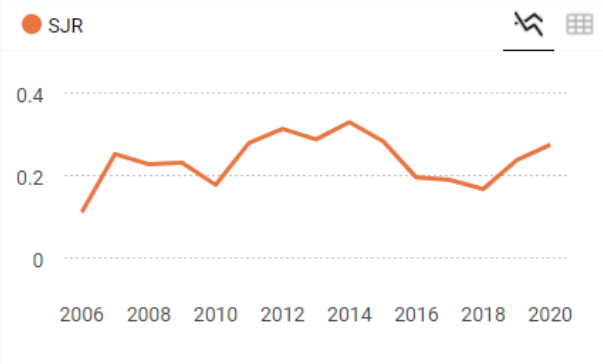

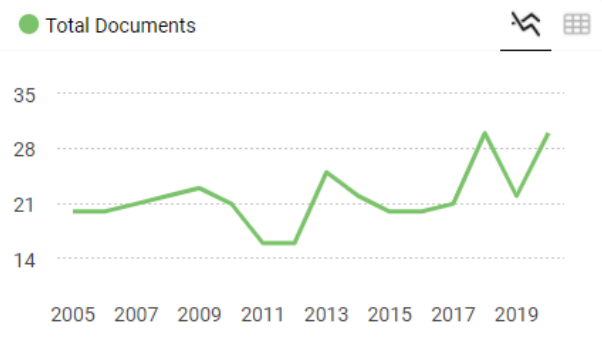

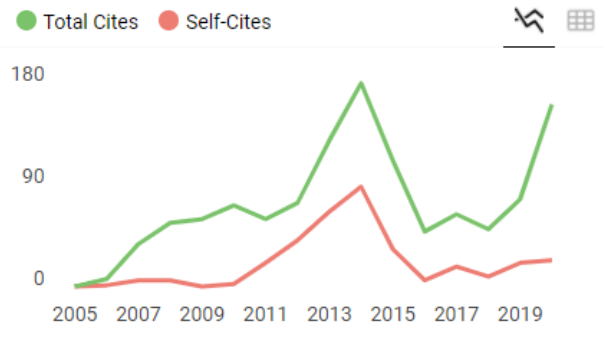

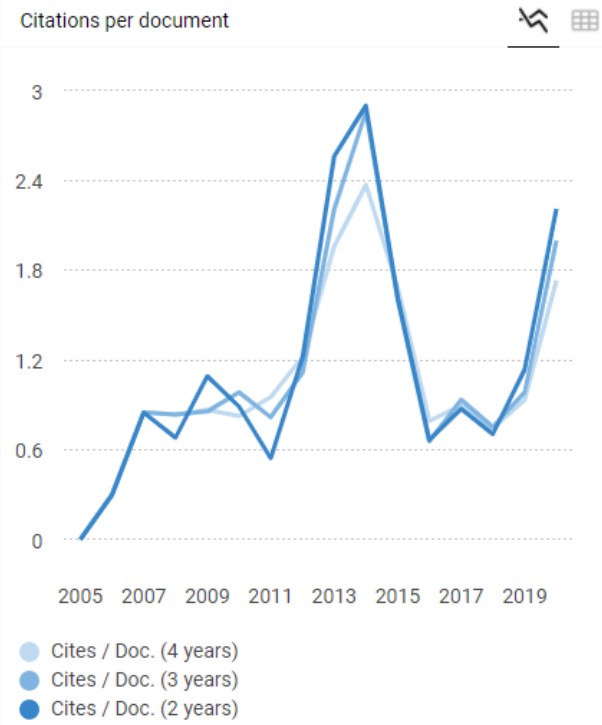

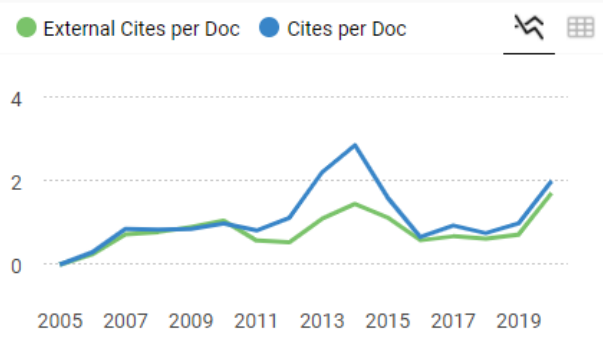

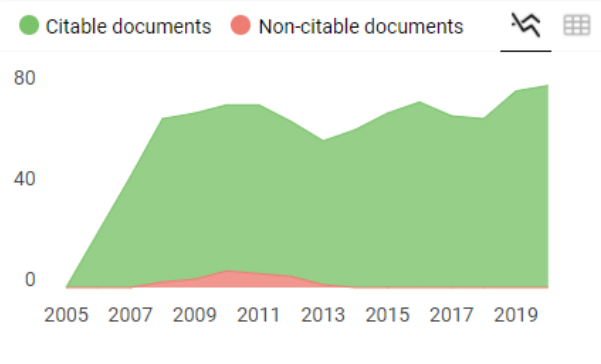

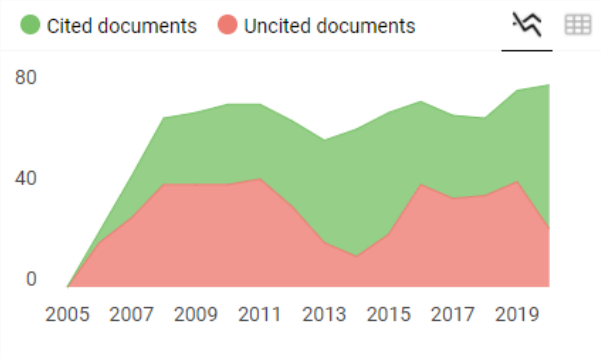

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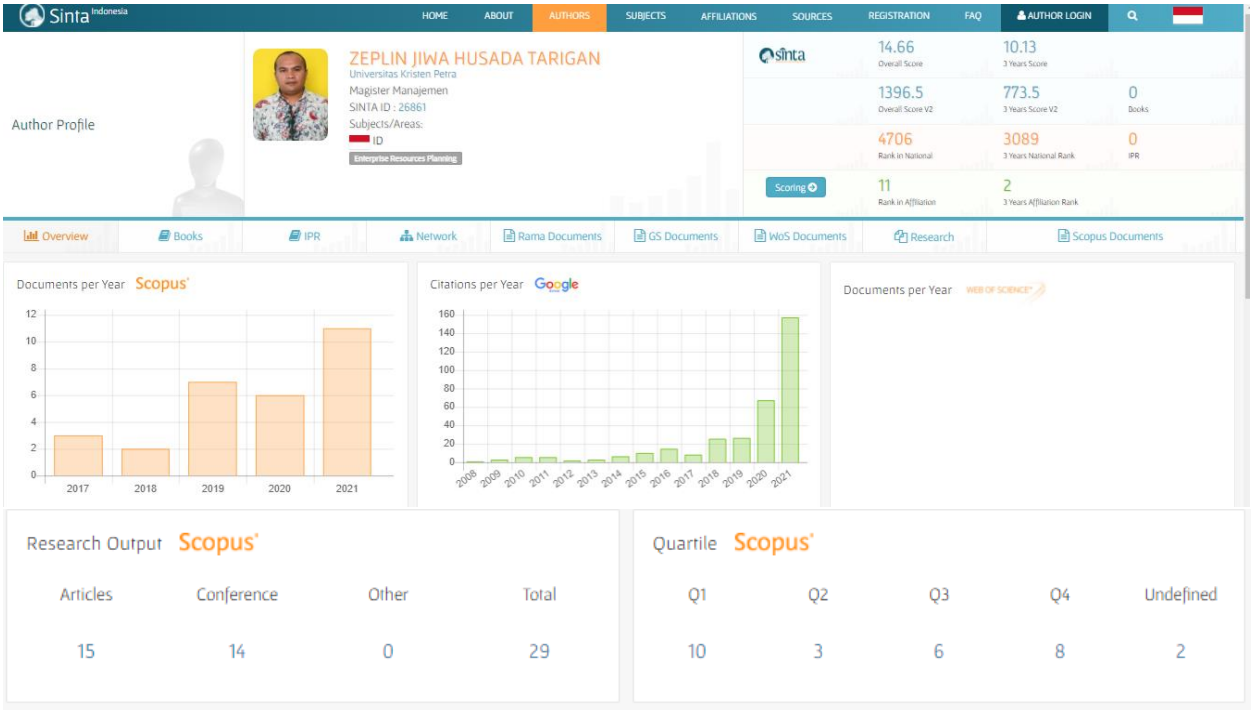

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Description, Mission, Scope & Coverage

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The International Journal of Enterprise Information Systems (IJEIS) provides comprehensive coverage and understanding of the organizational, people, and technological issues of EIS. Design, development, justification, and implementation of EIS including ERP and EC will be discussed. Developing an integrated supply chain with ERP systems and business process reengineering using EDI, Internet, WWW, Intranet, and Extranet are encouraged. Performance measures and metrics in the design and implementation of EIS will be covered. Different models and experiences with EIS outsourcing will be discussed. Conceptual frameworks, case studies, empirical analysis, analytical, and simulation models on EIS are also encouraged.

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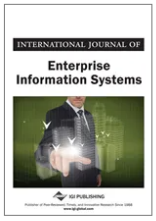

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Global markets and competition have forced companies to operate in a physically distributed environment to take the advantage of benefits of strategic alliances between partnering firms. Earlier, information systems such as Material Requirements Planning (MRP), Computer-Aided Design (CAD) and Computer-Aided Manufacturing (CAM) have widely been used for functional integration within an organization. With global operations in place, there is a need for suitable Enterprise Information Systems (EIS) such as Enterprise Resource Planning (ERP) and E-Commerce (EC) for the integration of extended enterprises along the supply chain with the objective of achieving flexibility and responsiveness. Companies all over the world spend billions of dollars in the design and implementation of EIS in particular ERP systems such as Oracle, Peoplesoft, SAP, JD Edwards and BAAN with the objective of achieving an integrated global supply chain. Inter-organizational information systems play a major role in improving communication and integration between partnering firms to achieve an integrated global supply chain. There is a growing demand for research and applications that will provide insights into issues, challenges, and solutions related to the successful applications and management aspects of EIS.

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The Role of Top Management Commitment to Enhancing the Competitive Advantage Through ERP Integration and Purchasing Strategy

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ABSTRACT

The role of the top management commitment is in enhancing the competitive advantage through ERP integration and the purchasing strategy. Data were collected using questionnaires from 49 manufacturing companies domiciled in the region of East Java, Indonesia. PLS technique was used to analyze the data. The result of the study indicated that top management commitment influences ERP integration and the purchasing strategy, top management commitment influences the competitive advantage, ERP integration affects the purchasing strategy, and ERP integration and purchasing strategy influences the competitive advantage. One of the most exciting findings revealed that ERP integration and purchasing strategy mediated the influence of top management commitment on the competitive advantage. Top management influences, directly and indirectly, the competitive advantage. This result provides the managerial implication that the management needs to establish an ERP integration and define a proper purchasing strategy in enhancing the competitive advantage of the manufacturing company.

KEYWORDS

Competitive Advantage, ERP Integration, Purchasing Strategy, Top Management Commitment

1. INTRODUCTION

In the new global economy, many countries have established communities within regional and world trading cooperation. The company has no choice rather than preparing to face the competition which intensifies as a world and regional trading community established. Nevertheless, this trading community has emerged a new opportunity and threat as well for the companies domiciled in the country member of the community. Among the opportunities is access into the broader potential market for the finished product and the sourcing of raw material from overseas. Similarly, this situation has also emerged new threats in the form of intensified competition between the product competitive dimensions such as cost, delivery, and responsiveness. This constraint has exposed the company to the

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risk of higher cost, longer lead time, and less responsiveness. The need for supply chain management practices become unavoidable as the network of the supply chain become more complex either for the sourcing of raw material from overseas or the distribution of the finished product abroad. The company should anticipate these potential risks and if possible, create a competitive advantage in respect of cost, delivery, flexibility, quality, responsiveness, and inventory system.

About this condition, recently, researchers have shown an increasing interest in the field of supply chain management in pursuit of how to enhance the competitive advantage from supply chain management. Research by Nikookar et al., (2010) suggested that the implementation of enterprise resources planning (ERP) enhances the competitiveness of the company because ERP enables the company to retrieve appropriate data in the manner of real-time and accurate which, subsequently, facilitates the achievement in the costs reduction, right decision making, better customer response, and the improvement process. The implementation of ERP provides the ability to connect all departments in the company resulting in more efficient administration and more accurate data in controlling the company's inventory. ERP implementation allows the company to reduce the cost of goods or services without sacrificing the quality level.

The purchasing strategy is one factor that improves the competitive advantage of the company. Principally, the primary goal of the purchasing strategy is to establish long-term cooperation with the supplier within the scope associated with new product developments, improving the quality of services and goods, and sharing of ideas that can improve product innovation. The purchasing strategy is long-term planning to meet the company's material needs related to the process of evaluating suppliers, selecting and determining suppliers, determining material prices by negotiating with suppliers, seeking potential suppliers for the company (Chiang et al., 2012). Furtherly, in enhancing the cooperation between both parties, the organization needs to develop its suppliers in respect of flexibility, delivery, and cost which are required to optimize the overall operations of the enterprise. In the same sense, top management should encourage an excellent relationship between the related department within the company which correlates with the material purchasing process in supporting the production. This functional relationship allows all related department to receive precise information regarding the product specifications, quantity, and delivery schedule.

Top management commitment is also another factor which can enhance the competitive advantage. Leadership has an essential role in determining the success of a company in facing the competition. The leadership is defined as the ability of a person to influence and direct the group or team he leads to be able to achieve goals both on long-term and short-term. The leader should have the ability in managing corporate resources and determining the appropriate strategy to adapt to external changes which are reflected by the business strategy. A leader should also be able to facilitate the innovation of the products or processes (Tarigan, 2018). The leadership is also reflected in the form of Top management commitment which determines the success or failure of the ERP implementation in supporting innovation activity within the company (Lee et al., 2016).

Those previous studies, so far, have primarily concentrated on three main concerns, i.e., first, the user of ERP (Park et al., 2007; Wu and Wang, 2007; Larsen, 2009; Zhu et al., 2010; Ajer and Hustad, 2015; Matende and Ogao, 2013); second, the implementation of ERP (Nicolaou and Bhattacharya, 2006; Hallikainen, et al., 2009; Hsu et al., 2015;); and third, ERP information quality (Zhou et al., 2014; Marinagi et al., 2015). Moreover, those researches have focused only on the direct influence of top management commitment, ERP integration, and purchasing strategy on the competitive advantage, and to the best of authors knowledge, very few studies that take into account the relationship of the four constructs simultaneously. Tthis study fills the gap by examining the influence of Top management commitment on the competitive advantage through the mediating role of ERP integration and purchasing strategy. This topic, consequently, raises six research questions to be examined which are 1) whether Top management commitment affects the ERP integration, 2) whether Top management commitment affects purchasing strategy, 3) whether ERP integration has impact on the purchasing strategy, 4) whether Top management commitment affects competitive advantage, 5) whether ERP

integration influence competitive advantage, and 6) whether purchasing strategy influence competitive advantage. In addition to these direct influence, this paper also examines whether ERP integration and purchasing strategy mediate the influence of top management commitment on the competitive advantage. The result of this study will provide a new insight for the practitioner and enrichment on the current research on supply chain management.

2. THEORETICAL REVIEW

2.1. Competitive Advantage and ERP Integration Relationship

The company should build competitive advantages to outperform its competitors. In the perspective of the supply chain management, competitive advantage is reflected in term of cost, delivery, flexibility, quality, responsiveness, and inventory system. Production cost determines the price of the product. When the cost of production is lower than that of the competitor, the company product will be able to compete in the marketplace. In the same sense, when the product is delivered as promised, the customer will be satisfied and become loyal. Indicators used in competitive advantage are cost, customer satisfaction, inventory reduction, flexibility, responsiveness, and resource utility.

The benefit for the company from using ERP in integrating all departments in the company are the efficiency in administration function and the availability of adequate data in the pursuit of controlling the company's inventory. ERP implementation in the company reduce the cost of producing goods and providing services, without sacrificing the level products or services quality and still meet the specified specifications and the service level. In other words, the implementation of ERP enables the company to enhance its competitiveness regarding costs, strategic decision making, flexibility, responsiveness, flexibility, and process improvement (Nikookar et al., 2010).

The integration of system in manufacturing companies allow the conveying of information in real time between departments and individual as well. Information retrieved in real time provides higher flexibility and responsiveness in facing any external changes. Chen and Lin (2009) suggest that ERP implementation provides reliable data availability which reduces cycle time, speeds up transactions, allows better control of the budget, and plans corporate financial arrangements. The integration of the system allows each functional to see other processes of the other functions such that all functions work in the same rhythm (Jacobs and Weston, 2007). ERP can integrate internal processes such as financial, accounting, production, purchasing, and human resources (Nikookar et al., 2010). By integrating Inter-functional, it makes it easy to retrieve data from all departments required in preparing reports for the management in the pursuit of right decision making. Indicators specified are data accuracy between departments, completeness of data between departments, transparency of data between departments, reliable data and data integration in real time. The advantages for the company from using ERP to integrate all departments in the company are the benefit from efficient administration and provision of adequate data availability in controlling the company's inventory. ERP implementation in the company emphasizes cost emphasis. Companies in producing goods and providing services with the lowest cost, but the quality of products still meet the specified specifications. The company implements ERP in enhancing its competitiveness has the motive to reduce costs, strategic decision making, better customer response, improvement process in the company (Nikookar et al., 2010).

Research conducted by Hallikainen et al. (2009) states that the business scope and technology scope must be matched and determined by the top management of the company to support the competitiveness of the company. Business scopes in companies represented in strategic business decisions on business and defined tactical business decisions up to the operational business decisions stage. While technology scope consists of strategic technology decisions, tactical technology decisions, and operational technology decisions, module sequencing decisions will determine business scopes and technology scopes on each ERP module (Iris and Cebeci, 2014). Integration between the ERP module and business functions will make the company's operational system effective and efficient.

The companies usually have a system and procedure starting from the orders receipt by the marketing department, processing orders into a production plan, calculating material requirements, procurement of material, production realization, and costing process by the accounting and finance department. Those stages of the process are connected through ERP systems which provides data in real time, fast, easy to retrieve and efficient (Jagoda and Samaranayake, 2017). ERP integrates all departments which are related to the production and automatically calculate the needs of finished products and by using bill of material (BOM) data to support the production schedule (Monostori et al., 2010).

2.2. ERP Integration and Purchasing Strategy Relationship

Purchasing is one of the organizational structure and also as a function in material procurement, sub-material, components and stationery. Responsibility on the purchasing is to get goods that fit the needs of the company associated with the quantity and quality of goods used by the company to maintain the smooth operation of the company's system. Purchasing has one goal is to get the efficiency and effectiveness of the company's operations because it is directly connected with other departments, especially on the operational. In companies that have implemented ERP, they are integrated with all departments within the company. The role of purchasing has the potential to create the competitiveness of the company, as it can maintain and improve time to market, product quality and quantity, as well as increased responsiveness. Manufacturers generally use strategy selected in the procurement of materials. The purchasing strategy is long-term planning to meet the company's material needs related to the process of evaluating suppliers, selecting and determining suppliers, determining material prices by negotiating with suppliers, seeking potential suppliers for the company (Chiang et al., 2012). The purchasing strategy is run by a purchasing manager who can perform data analysis primarily on costs, an understanding of the supply market, the ability to negotiate and develop contracts, communication skills and effective presentation of purchasing strategies.

Purchasing strategy established by the company to be able and able to establish long-term relationship cooperation with the supplier. Relationships and communications built by purchasing parties with suppliers associated with new product developments, improving the quality of services and goods, share ideas that can improve product innovation. In improving the efficiency of the procurement of raw materials, the purchasing party must be able to develop its suppliers so that the level of flexibility of the company's production increases will increase the company's competitiveness. Working well with suppliers will help the company to manage and optimize the company's operations that will improve the company's profit. A good relationship is also done by the department of purchasing with other departments related to material demand in the purchasing department. Requests from other departments to the purchasing department should provide precise information to facilitate a shared understanding of product specifications requested by other departments. Clarity of information obtained will facilitate purchasing to procure raw materials and excellent communication with the supplier. Companies that have implemented ERP generally use data integration to avoid miscommunication with other departments. Implementation of ERP on the purchasing then all materials have an identification (ID) of individual material and its specification.

Manufacture companies in East Java mostly use the strategy of multiple sourcing. This strategy relies on the process of comparing offers from many suppliers to select one the best. The supplier is assigned to take all responsibility in developing its business and product innovation in order to fulfill the company request. This condition resulted in intense competition from suppliers and competing with each other aggressively. Despite many negotiation approaches used in this strategy, however, long-term relationships are not the primary objective. Indicators used to measure purchasing strategy are: determining potential suppliers, developing suppliers for the company benefit, contracting with suppliers, having long-term planning and evaluating suppliers on an ongoing basis.

2.3. Purchasing Strategy and Competitive Advantage Relationship

The purchasing strategy adopted by the company is aimed at establishing long-term relationship cooperation with the supplier. Relationships and communications built by purchasing parties with suppliers are essential to involve the supplier in the process of new product developments, improvement of the quality of services and goods, and share ideas that can improve product innovation as well. The relationship between purchaser and supplier is also required in enhancing the efficiency of the procurement of raw materials. The buyer, therefore, needs to develop and manage its suppliers in term of flexibility and responsiveness which, in the end, will increase the company's competitiveness. Working well with suppliers will help the company to manage and optimize the company's operations that will improve the company's profit. Besides the relationship with the supplier, purchasing department also needs to have a good relationship with other departments particularly those which are related to the material procurement. With an established relationship, other departments will provide precise information particularly in respect of material specifications required by using the standardized identification of each material. Purchasing department, consequently, will be able to procure raw materials from the supplier.

Utilization of this information technology allows the purchasing department to establish an effective procurement strategy. Purchasing departments can communicate and collaborate well with suppliers. Strategic procurement for the company can increase the sourcing capability to reach an agreement between suppliers with the company (Su, 2013). The use of integrated information technology can improve the business process quickly and accurately to maintain the company's advantage (Nikookar et al., 2010). The purchasing strategy is a process of planning, implementation process, supervision process and evaluation process to the supplier. This process is essential to maintain supplier performance consistency. Purchasing strategy affects company performance and business performance and ultimately gives the company competitiveness (Semuel et al., 2018). The ability of the purchasing department to procure materials at a Kenyan manufacturing company provides an improvement to the company's operational performance (Susan and Wagoki, 2014). The purchasing strategy is established to provide competitiveness for the company.

Manufacture companies mostly use the purchasing strategy that involves many suppliers. This strategy compares the offers from that supplier to get the best offer. This condition resulted in intense competition from the suppliers and the negotiation with the supplier focused on the gain for the one and loss for the other. Despite many negotiation approaches used in this strategy, however, long-term relationships are not the primary objective. Purchasing strategy assesses the extent to which the company select the potential best suppliers, develops the suppliers, administer a contract with suppliers, having long-term planning, and evaluating suppliers on an ongoing basis.

2.4. Top Management Commitment and ERP Integration Relationship

Leadership is an essential factor in determining the success or failure of a company. Leadership is the ability of a person to influence and direct the group or team he leads to be able to achieve goals or goals that have been set, both on long-term goals and short-term goals. The ability of a leader in managing corporate or organizational resources and the ability of a leader to determine the right strategy to adapt to external changes to fit the business cycle will affect the company's position and sustainability. The company needs a reliable and capable leader to direct all of the company activity to face competition. A leader must create an innovation environment to enable the activity of product and processes innovation. Innovation by some companies by implementing ERP technology and keeping it in line with external changes, this success is determined by the commitment of top management (Lee et al., 2016).

Top management is responsible for encouraging the organization to continuously innovate as a response to the constantly changing business environment and to develop and upgrade organizational capability (Ismail and Mamat, 2012). Top management is also responsible for defining the business strategy through a short-term and long-term goal. Top management of the company needed its

commitment to be able to organize, manage, and control throughout the company's activities to be a winner in the global competition. Enterprise management can create an environment and inspiration for all workers to be able to create efficiency, effectiveness, grow and develop the potential of employees to win the competition. Company management can ensure that the company is at its core competency (Suprapto et al., 2017). Competence owned by the company to create a product or service suitable for the customer's desire to create competition. Management can integrate all resources to obtain the best practice for the company. The integration that companies use in information technology systems is ERP. The development of an ERP system for a company is a task of top management visible from its commitment (Ke and Wei, 2008). Top management commitment is a management capability to organize members within the organization of the company and control it to achieve the goals that have been set. The indicators used to measure the commitment of top management are: the management establishes the company's goals. The management plans the employee development, the management provides employee training, the management works hard to succeed the goals, the management provides resources as needed and the management periodically evaluates the system.

2.5. Top Management Commitment and Purchasing Strategy Relationship

Top management facilitates the purchasing department in enhancing an appropriate employee competency in the field of the procurement process. Top management has the role of directing the purchasing department to adopt an appropriate purchasing strategy such as green purchasing (Yen and Yen, 212). In achieving the goals, top management establishes a plan in developing employees ability in determining and evaluating suppliers on an ongoing basis. However, another research by Ramakrishnan et al., (2015) is different from previous research. This study stated that the top management commitment did not influence the purchasing strategy in adopting the green purchasing strategy at small manufacturing enterprises in Malaysia. From these two contrary results, this study adopts the result from the research by Yen and Yen (2012) which state that top management commitment has an impact in defining the purchasing strategy.

2.6. Top Management Commitment and Competitive Advantage Relationship

Top management commitment can directly increase the competitive advantage. One of the top management roles is to make a set of decision and policy in creating a competitive advantage for the company. Top management is committed and working hard to achieve the company goals through the enhancement of employee competence and the provision of the resources required in achieving customer satisfaction. Research by Ferri and Pedrini (2018) states that top management can improve the corporate performance which furtherly, provides an impact on the competitive advantage of the company. Research conducted by Hallikainen et al., (2009) states that that business scope and technology scope must match and be determined by the company's top management to create the company's competitive advantage. Business scopes are represented in the strategic business decisions, tactical business decisions, and operational decisions of the business stage. While technology scope consists of strategic technology decisions, tactical technology decisions, and operational technology decisions. Business scope and technology scope will be executed respectively by as sequenced on the ERP module (Iris and Cebeci, 2014). The integration between the ERP module and business functions will make the company's operational system effective and efficient which subsequently results in a competitive advantage for companies.

The competitive advantage of a company constitutes a superiority owned by a company to compete in the market they serve. The competitive advantage can be in the form of products characteristics or company resources performing much better than the competitor in the same market. (Elshaer and Augustyn, 2016). The ability of a company to create a competitive advantage enables the company to provide a valuable benefit to the customer, and in the end, the company will enjoy the growth of customer demand for the product from the local, regional and international request.

The indicators used in competitive advantage are cost reduction, customer satisfaction, inventory reduction, increased corporate flexibility, customer responsiveness and increased utility of company resources.

2.7. Hypotheses Development

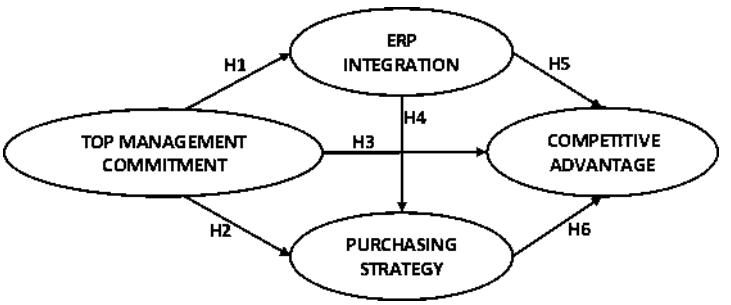
The previous discussion on theoretical review demonstrated that a company such as a manufacturer will be able to enhance their competitiveness through product innovation or process innovation in improving the company performance (Tarigan, 2018). Manufacturing companies create and enhance their competitive advantage for outperforming their competitors. The competitive advantage is highly necessary for today intensifying competition either in the local, regional or international market. Hence, top management of the company has no choice other than to adopt information technology systems into their operational practices in integrating the internal and external function (Riley et al., 2016). Integration of internal and external function of a company function such as using enterprise resources planning (ERP) enables manufacturing companies to be more agile and flexible in response to the market demand (Khalaf and Mokadem, 2019). All functions involved in a process within a company will obtain the data from the same sources easily, quickly and thoroughly. Another benefit of using ERP technology in integrating the function is that it allows the company to realize the purchasing strategy of manufacturing companies. The research framework for this study can be described as indicated in Figure 1 and six hypotheses are proposed as follows:

H1: Top management commitment influences ERP integration.
H2: Top management commitment influences the purchasing strategy.
H3: Top management commitment influences the competitive advantage.
H4: ERP integration affects the purchasing strategy.
H5: ERP integration influences the competitive advantage.
H6: Purchasing strategy affect the competitive advantage.

3. RESEARCH METHODOLOGY

Data for this study was collected using questionnaires distributed to manufacturing companies in East Java, Indonesia. The questionnaire was designed using a five-point Likert scale ranging from 1: strongly disagree up to 5: strongly agree. Sampling frame used purposive sampling technique which meets three criteria which are: first, the companies have implemented ERP (in the form of SAP products, Oracle, Microsoft dynamics, people soft, MFG Pro, and the development of their ERP systems); second, the companies have implemented data integration in the purchasing department; third respondents have middle-level managers in the company. The reason for the criteria is to make sure that the information obtained from the respondents coincide with the operational conditions

Figure 1. Research model



of the company. Based on the data gathered from the bureau statistic, there are 124 manufacturing companies domiciled in the region of east java Indonesia. After through detailed review, we found there are 60 companies which fulfilled the criteria. These companies consist of food and beverage, garment, cigarette, and chemical manufacturing. Those enterprises not included in the survey are actually not engaged in the manufacturing process but engaged in the supporting sector such as supplier, distributor, and retailer. The questionnaires were distributed to the sixty companies through postal for the company located far from the city, and hand carries to the companies located close to the city. It takes six weeks to distribute and collect the data. From sixty questionnaires, forty-nine questionnaires are correctly administered for the next analysis. All of the respondents are composed of different position in the organization structure. There are three owners, two general managers/ plant managers, twenty managers, fifteen assistant manager, one supervisor, and eight officers. This composition shows that all the position in the organization structure, especially the purchasing department, have been represented. The working experience of the respondents also indicated that they have adequate working experience, knowledge, and competencies. Based on the working experiences, the respondents have various range of working experiences, i.e., three respondents with less than one year; four respondents between one to three years; five respondents between three to five years; twelve respondents with working experience between five to ten years; and twenty five respondents with working experience more than ten years.

The enterprises which are involved in this study used various type of ERP software. There are twenty-two companies used SAP software, eight companies used Oracle software, three companies used Microsoft dynamics software, one company used MFG Pro software, and 15 companies develop their ERP system. Those companies involved in the survey are off different size in respect of employees. There are three companies which have less than 100 workers, twelve companies have between 100 up to 200 employees, five companies have 200 up to 300 employees, two companies have 300 up to 400 workforces, eight companies have 400 up to 500 workforce, and nineteen companies have more than 500 workforces. Partial Least Square (PLS) technique was used to analyze the data. The use of the PLS technique is a well-established approach particularly in the case of a small number of respondent and limited theory such as on this study.

4. RESEARCH RESULT

The first set of analysis examined the measurement model to assess validity and reliability. Meanwhile, the second set of analysis tested the hypotheses proposed based on the literature review. Table 1 demonstrated the result of the measurement model assessment. As shown, all indicator have the factor loading ranges from 0.550 up to 0.888 which are higher than 0.5 as the minimum recommended value. This result proved that all indicators are highly correlated with its variable and appropriate to become the indicator of the variable. Beside the convergent validity, discriminant validity is another measurement which compares between the factor loading and the cross loading with other variables. As shown in Table 1, those factor loading of indicators is greater than its cross-loading with another variable. This means that those indicators are more correlated with their variable than with other variables. Hence, the measurement model is considered valid.

The next assessment of the measurement model isthe reliability. Reliability assesses the extent to which the block indicators of each variable provides consistent result during different moment and situation. Cronbach alpha, composite reliability, and average variance extracted (AVE) measure the reliability of the measurement model. Table 2 indicated the reliability regarding the three measurements. The Cronbach alpha and composite reliability have the value which ranges from 0.690 up to 0.901. Those values are higher than 0.600 as the minimum accepted value.

Meanwhile, the AVE ranges from 0.484 up to 0.606. The minimum accepted value for the AVE is 0.500. Since the lowest value of AVE closely approach 0.500, and the other reliability measurements are accepted, we considered the AVE value of 0.484 is acceptable. Based on this result, we conclude

Table 1. Factor loading and cross loading of indicators

Variable/Indicator	Factor Loading	Cross Loading			
		Top Management Commitment	ERP Integration	Purchasing Strategy	Competitive Advantage
Top management commitment					
Management set the company goal clearly (X1.1)	0.550		0.283	0.357	0.269
The management plan the development of the employees (X1.2)	0.782		0.363	0.319	0.391
Management provides training (X1.3)	0.759		0.462	0.511	0.649
Management works hard to succeed in the goal (X1.4)	0.888		0.349	0.441	0.521
Management provides resources according to the needs (X1.5)	0.731		0.261	0.414	0.504
Management periodically evaluates the enterprise system (X1.6))	0.675		0.385	0.315	0.362
ERP Integration					
ERP provides an accurate data between departments (X2.1)	0.661	0.288		0.425	0.41
Completeness of data between departments (X2.2)	0.806	0.501		0.577	0.71
Transparency of data between departments (X2.3)	0.733	0.197		0.268	0.368
Reliability of data (X2.4)	0.818	0.405		0.378	0.408
Real-time data integration (X2.5)	0.639	0.264		0.358	0.323
Purchasing Strategy					
Determining potential suppliers (X3.1),	0.81	0.494	0.646		0.792
Developing suppliers for the company (X3.2)	0.606	0.208	0.093		0.355
Making contracts with suppliers (X3.3)	0.622	0.257	0.187		0.234
Having a long-term plan (X3.4)	0.656	0.394	0.39		0.361
Evaluating suppliers continuously (X3.5)	0.693	0.376	0.338		0.416
Competitive Advantage					
Cost reduction (Y1.1)	0.759	0.547	0.495	0.509	
Customer satisfaction (Y1.2)	0.868	0.552	0.707	0.792	
Inventory reduction (Y1.3)	0.804	0.472	0.45	0.532	
Increased flexibility of the company (Y1.4)	0.759	0.568	0.49	0.498	
Customer responsiveness (Y1.5)	0.61	0.257	0.286	0.215	
Increase in the company's resource utility (Y1.6)	0.844	0.494	0.469	0.618	

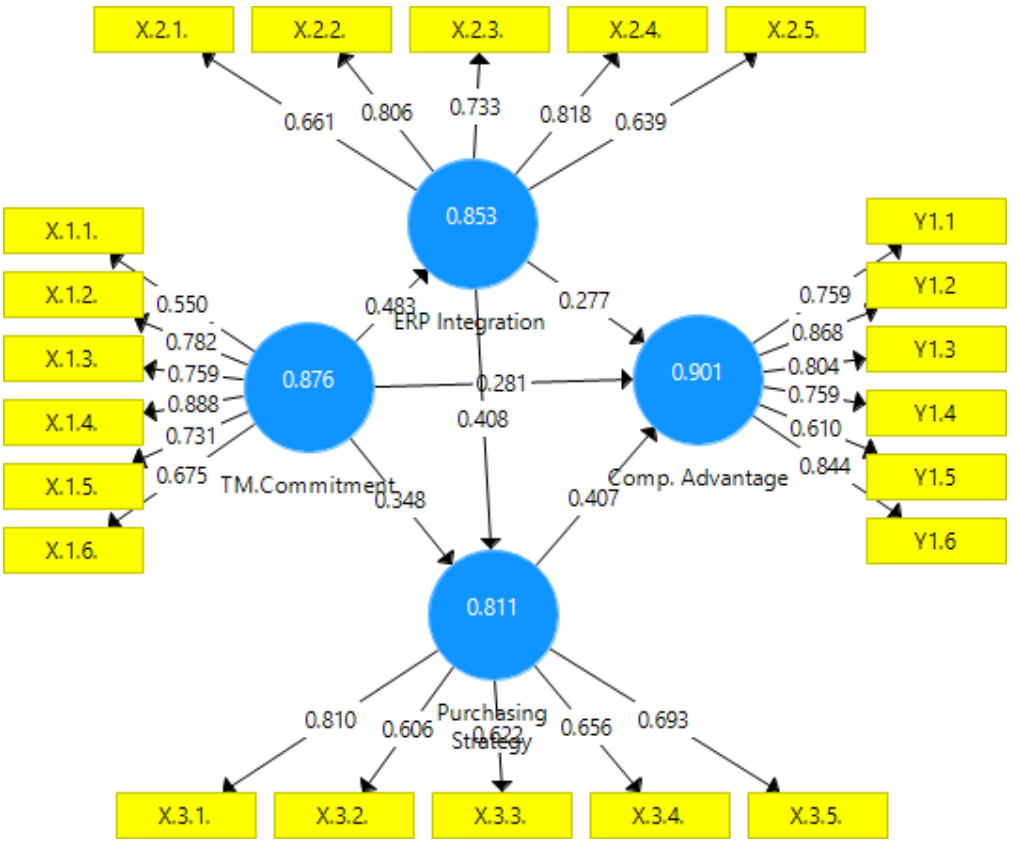
that the measurement model is valid and reliable. Table 2 also indicated that the value of R-square for the three dependent variables, i.e., ERP Integration, Purchasing strategy, and Competitive Advantage. Those value of the R-square ranges from low (0.234) and moderate (0.425 and 0.651). This value means that the affecting variable moderately explains the variance of the dependent variable.

The value of those R-squares allows the assessment of the predictive relevance, denoted by Q-square = 1- $(1-R_1^2)(1-R_2^2)(1-R_3^2)$, which means how robust the model of this study can predict the dependent construct which is a competitive advantage. The Q-square for the model is 0.91. As the value approach one, it means this model has an excellent predictive relevance which means the model applies to enhance the competitive advantage. Figure 2 demonstrated the research model and the result of the data analysis.

Table 2. Reliability and R-square of construct

Construct	R-square	Cronbach Alpa	Composite Reliability	AVE
Top management commitment	-	0.829	0.876	0.545
ERP integration	0.234	0.791	0.853	0.540
Purchasing Strategy	0.425	0.690	0.810	0.484
Competitive Advantage	0.651	0.870	0.901	0.606

Figure 2. Research model and analysis result



The next analysis is to assess the path coefficient of each relationship and its significance to examine the six hypotheses. The result of the hypotheses testing can be seen from the Partial Least Square output as indicated in Table 3.

Table 3 indicated that those six hypotheses are supported by the empirical data collected from the manufacturing industry in the region of East Java, Indonesia. The first hypothesis which states that Top management commitment positively affects ERP integration is supported with the coefficient of 0.483 and the t-value of 4.567 (higher than 1.96 for 5% significant level). The finding proves that top management commitment is to set goals and develop the company employees capability for the implementation and maintenance of the ERP integration. The ERP integration supported by the capable employee will allow the provision of the appropriate and reliable data required in decisions making. This result supports the previous studies which revealed that Top management commitment has an impact on the ERP integration implementation (Matende and Ogao, 2013 and Soja, 2006).

The second hypothesis which stated that Top management commitment influence the purchasing strategy is also supported by the empirical data from the manufacturing companies in East Java. This result is shown by the path coefficient of 0.348 and the t-value of 2.605. Top management establishes the company goals, train and develop the employee through training to build up the purchaser competency in identifying and evaluating the potential suppliers. This finding supports the research by Yen and Yen (2012) which states that Top management commitment affects the purchasing strategy of adopting green purchasing standard. However, this research is different from the study by Ramakrishnan et al. (2015) which stated that the Top management commitment gives no effect on the purchasing strategy in green purchasing for the small manufacturing enterprises in Malaysia. As expected, hypotheses three which state that Top management commitment affects competitive advantage is also supported. This fact is shown by the path coefficient of 0.281 and the t-value of 2.113 (higher than 1,96 for the significant level of 5%). This finding proves that company management through the establishment of the goals and policies, and the training of the employee contributes to improving customer satisfaction. This finding supports the research by Ferri and Pedrini (2018) which states that Top management commitment positively contributes to the company performance that ultimately impacts on the competitive advantage.

The fourth hypothesis which states that ERP integration gives an impact on the purchasing strategy as shown by the coefficient of 0.408 and the t-value of 3.296 The result demonstrated that the purchasing department highly requires the company to integrates the data between departments and make data available on ERP systems. Once the data are available in the ERP system, the purchasing section can evaluate and determine potential suppliers on an ongoing basis.

Table 3. Path coefficient and T-value of relationship

Hypothesis	Orig. Sample Estimate	Mean of Subsamples	Standard Deviation	T-Statistic
ManagementCommitment->ERP Integration (H1)	0.483	0.522	0.106	4.567
Top management commitment -> Purchasing strategy (H2)	0.348	0.347	0.134	2.605
Top management commitment-> Competitive advantage (H3)	0.281	0.289	0.133	2.113
ERP Integration -> Purchasing Strategy (H4)	0.408	0.431	0.124	3.296
ERP Integration -> Competitive advantage (H5)	0.277	0.267	0.119	2.328
Purchasing strategy-> Competitive advantage (H6)	0.407	0.409	0.126	3.233

This study supports the research of Suliantoro et al., (2015) which states that system integration can help the process of e-procurement.

The fifth hypothesis which states that the ERP integration system affects the competitive advantage with the path coefficient of 0.277 and the t-value of 2.328. This result provides proof that the availability of data shared between departments allow all departments to access and analyze the same data. The availability of the same data between all department allows the organization to serve the customer in a much better way that customers are satisfied. This study supports the research by Mohamad et al., (2017) which states that the implementation of ITC (information technology capability) as an integrated system provides the impact of corporate innovation in building competitive advantage. Thus enhancement of scope technology can provide the increased scope of business development (Hallikainen et al., 2009). This research also supports the research of Ya'kob and Jusoh (2016) stating that information sharing in the form of data integration in ERP can provide improved performance to enhance the competitiveness of companies.

The last hypotheses (sixth hypotheses) which state that purchasing strategy influences the competitive advantage is supported by the empirical data as well. The continuous evaluation of suppliers will push the supplier to provide the best service to the corporate and consequently, the company will be able to provide the best product or service to the company. In other words, purchasing strategy support the company to serve the customer in the best manner and finally improve the competitive advantage of the company. This study supports the research by Ferri and Pedrini (2018) stating that the purchasing process as a form of strategy can provide economical performance, competitiveness, and risk aversion.

One of the objectives of this research is to explore the role of the ERP integration and purchasing strategy in the relationship between top management commitment and the competitive advantage. As indicated in the previous discussion, those six hypotheses of the direct impact are supported by the empirical data. This finding, consequently, means that the indirect relationships between constructs are present. Hence, top management commitment also indirectly and positively improve the competitive advantage through the mediating role of the ERP integration and the purchasing strategy in dealing with best suppliers. This finding of indirect effect implies that the management of the manufacturing companies in the region of East Java, Indonesia needs to establish an ERP integration in providing the data source in a timely and accurate manner. This result also revealed that the establishment of an appropriate purchasing strategy is necessary to reinforce the influence of top management commitment in enhancing competitive advantage.

5. CONCLUSION

The objective of the present work paper is to examine the role of top management commitment on competitive advantage through ERP integration and purchasing strategy. The result of the study indicated that those six hypotheses are supported. Top management commitment influences the integration of the ERP system. Furtherly, top management commitment supports the purchasing department in applying an excellent purchasing strategy through continuous supplier evaluation and development. Top management commitment also contributes to the creation of the competitive advantage of the enterprise. Integration of existing data on the company through the ERP application also allows the purchasing department to accurately determine an appropriate purchasing strategy providing benefit to the company. The ERP integration by the enterprise enables all department to be integrated and provide the benefit in term of accurate data, quick response, and reduced cost which in the end increasing the competitive advantage of the company. Another finding from this study is the fact that Strategy purchasing influences the competitive advantage through the achievement of lower cost, best support from a supplier in term of quality and flexibility. The most exciting finding of this study is the fact that ERP integration and purchasing strategy mediate the influence of top management commitment on

the competitive advantage. This establishment of the ERP integration and purchasing strategy by the top management provide an additional indirect impact of the top management commitment in affecting the competitive advantage. Hence, top management commitment, in total, enhance the competitive advantage in a higher impact than that of only direct impact. This result provides insight for the manufacturing practitioner and paves the way for the manager in enhancing the competitive advantage through the establishment of the ERP integration and the determination of the proper purchasing strategy. Beside managerial contribution, this result of the study also contributes to the enrichment of the current research in the field of supply chain management.

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